

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

Suzanne Genereux, et al.)	Case No. 04-cv-12137 JLT
)	
Plaintiffs,)	FILED UNDER SEAL
)	
v.)	CONTAINS CONFIDENTIAL
)	INFORMATION; SUBJECT TO
American Beryllia Corp., et al.)	PROTECTIVE ORDER
)	
Defendants.)	
)	
)	

**DEFENDANT HARDRIC LABORATORIES, INC.’S STATEMENT OF
UNDISPUTED FACTS**

Defendant Hardric Laboratories, Inc. (“Hardric”) submits this Statement of Undisputed Material Facts, pursuant to Local Rule 56.1, in support of its motion for summary judgment on all claims asserted against it by the plaintiffs.

I. THE PARTIES

A. Plaintiffs

1. Plaintiff Suzanne Genereux worked for Raytheon Company from 1982 to 1990, during which time she held three different positions: (1) large tube assembler at Raytheon’s Waltham, Massachusetts plant (“Waltham Plant”); (2) quality assurance worker at Raytheon’s Northborough, Massachusetts facility; and (3) quality control inspector at the Waltham Plant. (Exhibit 1, S. Genereux Depo., 15, 20, 33, 38, 51, 79-80).

2. Mrs. Genereux claims that she was exposed to beryllium while sandblasting ceramic parts made of beryllium oxide (also referred to as “BeO” or “beryllia”) at the Waltham Plant in the first of these jobs, and developed chronic

beryllium disease (“CBD”) from that exposure. (Am. Compl. at ¶ 17, 36; Exhibit 1, S. Genereux Depo., 73.)

3. Plaintiff Barry Genereux is Mrs. Genereux’s spouse. Plaintiffs Angela and Krista Genereux are Mr. and Mrs. Genereux’s children. (Am. Compl. ¶¶1-2).

B. Hardric Laboratories, Inc.

4. Hardric Laboratories, Inc. (“Hardric”) is a small specialty machining and optics company located in Massachusetts, employing no more than thirty persons at one time. (Exhibit 2, Part One, Richard Depo., 13-15, 24.)

5. Hardric has manufactured only optics, gyro parts, gimbals, and components for holding optics out of beryllium, and has appropriate machinery for manufacturing those parts. (Exhibit 2, Part One, Richard Depo., 15-16, 36 – 38, 90.) All of those components only use beryllium metals. (Exhibit 2, Part One, Richard Depo., 16 - 17).

6. Between 1960 and 2000, Hardric did not machine or manufacture any beryllium ceramics. (Exhibit 2, Part One, Richard Depo., 18-19, 41 – 43). Peter Richard testified that Hardric decided not to manufacture beryllium ceramics because “[t]he feeling at the time was that Beryllium Oxide was incredibly more dangerous than Beryllium metal, and nobody in our facility wanted to machine it.” (Exhibit 2, Part One, Richard Depo., 42.)

C. Brush Wellman, Inc.

7. Brush Wellman, Inc. (“Brush”) manufactures beryllium and beryllium-containing products. (Exhibit 3, Kolanz Decl. ¶ 3).

8. Beryllium is a metallic element – number 4 on the periodic table – and like copper and iron, is widely present in nature. As a pure metal, it is much lighter than aluminum, yet six times stiffer than steel. (Id.)

9. Among the beryllium products that Brush produces are beryllium oxide ceramics, also called beryllia. Beryllium oxide is lightweight, very rigid and withstands extreme temperatures and dissipates heat more rapidly than other ceramic materials. (Id.) As a result of its unique combination of properties, beryllium oxide is used for critical components in aerospace, defense, medical, and telecommunications industries, including commercial and military satellites, radar installations, missile systems, and MRI and CAT scanners. (Id.)

D. Raytheon Company

10. As Raytheon stated in its 1989 Annual Report, “Raytheon is a major company actively engaged in the conception, development, manufacture and sale of electronic systems and subsystems, equipment and components for Government and commercial use.” (Exhibit 4, Ubersax Aff., Exh. A at A04.) Between 1982 and 1990, the years when Mrs. Genereux was employed by Raytheon, Raytheon was a Fortune 100 Company, ranked between numbers 48 and 62 on the list of America’s largest corporations. (Id. at Exh. B.) Raytheon’s sales to the United States Government “were \$4.863 billion in 1989 and \$4.352 billion in 1988, representing 55.3% of total sales in both 1989 and 1988.” (Id. at Exh. A at A04.) The “principal contributor” to Raytheon’s sales and earnings in 1989 was “sales to the United States and foreign governments of air defense missile systems, subsystems, and components thereof.” (Id.) Raytheon also sold “ship and land based radar systems for surveillance, target identification tracking, fire

control, navigation, air traffic control and weather observation; sonar systems; communications systems; electronic countermeasure systems and electronic components.” (Id.)

11. Of Raytheon’s 77,600 employees in 1989, 13,400 “were actively engaged in research and development,” and 6,400 of these held engineering or scientific degrees. (Id. at A09-10.)

12. Raytheon was experienced in working with hazardous materials. As its 1989 Annual Report notes: “While Raytheon’s business generally utilizes clean manufacturing processes, such processes at times utilize chemicals, solvents, gases and other materials which could be hazardous.” (Id. at A12.)

13. At its Waltham Plant, Raytheon manufactured primarily microwave and power tubes and magnetic devices. (Exhibit 5, McCarthy Depo., 29). These tubes were incorporated into such products as the Patriot missile system (Exhibit 6, Chartier Depo., 48), which was Raytheon’s largest program in 1989. (Exhibit 4, Ubersax Aff., Exh. A at A04.)

II. THE HEALTH RISKS OF BERYLLIUM

14. CBD is a lung disease believed to be caused by an immune response to beryllium. (Exhibit 3, Kolanz Decl. ¶ 4.) Beryllium in its solid form poses no special health risk; the only way a person can develop CBD is to inhale airborne beryllium (or beryllium oxide) particulate. (Id.)

15. Only a small percentage of the population is believed to be susceptible to this disease, or capable of developing an immunologic reaction to beryllium. (Id.) In those who develop an allergy-like sensitivity to beryllium, beryllium particles in the

lungs can cause lung inflammation, often in the form of granulomas. (Id.) Some people who develop CBD may never develop any symptoms, others may suffer some impairment until the disease stabilizes, and in others the impairment may progress. (Id.)

16. CBD was first recognized in the 1940s. (Id. at ¶ 5.) In 1949, the United States Atomic Energy Commission (“AEC”) recommended an occupational exposure limit for beryllium of two micrograms per cubic meter of air (“2 µg/m³”) to protect against CBD. (Id.) In the 1970s, OSHA adopted the two microgram limit, and this limit remains in effect today. (Id.)

III. HARDRIC’S DEALINGS WITH RAYTHEON

17. Hardric is a small parts machining shop. (Exhibit 2, Part One, Richard Depo., 13.) The only beryllium products with which Hardric worked were beryllium metals between 1960 and 2000. (Id. at 16-19, 36-38, 41-43).

18. When Hardric worked with beryllium metals, it took safety precautions including hiring a safety officer, regularly taking air samples, and installing ventilatory and engineering controls. (Id. at 25-27.)

19. Hardric also placed warning labels on outgoing shipments of products containing beryllium metals. (Id. at 92-96; Richard Depo., Part Two at Exh. 2.) One specifically warned about CBD. (Richard Depo., Part Two at Exh. 2.) Another specifically warned about beryllium dust. (Id.)

20. Hardric sometimes purchased beryllium metal from Brush Wellman, and obtained material from them in or around 1980. (Richard Depo., Part One, at 30). Beryllium from Brush Wellman was accompanied by Brush Wellman’s Material Safety

Data Sheet. (Richard Depo., Part One, at 143-144). Hardric obtained beryllium metal from other sources, also. (Id. at 31.)

21. Hardric's primary customers were military contractors such as Lockheed, Hughes Aircraft, Texas Instruments, Israel Aircraft, and Japan Aviation Electronics. (Id. at 34-35).

22. Hardric was never an approved vendor for Raytheon. (Id. at 140). Raytheon's purchasing agent for beryllium didn't recall the Hardric name. (Exhibit 6, Chartier Depo. at 162.)

23. The only individuals who could identify the manufacturers of products located in the Waltham facility did not identify Hardric as a supplier of the ARCO window or tall man products. (Exhibit 6, Chartier Depo., 53, 162, 188-190, 223.) One of the senior engineers on the project, Francis Balint, had never even heard of Hardric Laboratories. (Exhibit 7, F. Balint Depo. at 182.)

24. John Chartier testified that the windows of the size with which Suzanne Genereux actually worked were purchased from Ceradyne. (Exhibit 6, Chartier Depo., 50, 76.)

25. The only documented connection between Hardric and Raytheon involves twelve purchase orders billed to Raytheon and shipped by Brush Wellman to Hardric. (Exhibit 6, Chartier Depo., 18, 19). There is no indication that Hardric ever shipped any materials to Raytheon. (Exhibit 17, Exh. 19 to Chartier Depo., Parts 1-5.) The primary owner of Hardric, Peter Richard, did not remember ever supplying beryllium of any kind to Raytheon. (Exhibit 2, Richard Depo., Part One, at 45).

IV. OTHER MANUFACTURER'S WARNINGS TO RAYTHEON

26. Other manufacturers of beryllium also warned Raytheon. Specifically, Brush Wellman provided Raytheon with extensive safety information regarding beryllium, including the occupational exposure limits, since at least 1979. (Exhibit 3, Kolanz Decl., ¶¶ 6-21, 23.)

A. Brush Wellman's Warning Labels and MSDSs

27. Brush Wellman included warning labels "on each and every package containing beryllia ceramic that it sent to Raytheon. (Exhibit 8, Kolanz Depo., 139; Exhibit 3, Kolanz Decl., ¶ 6.) Brush Wellman's label advised the reader to consult Brush Wellman's MSDS for further information. (Exhibit 3, Kolanz Decl., Exhibits 1-2, 5-8.)

28. Raytheon's purchasing manager testified that Raytheon received warning information from Brush:

Q: Were you given anything in writing about the health hazards of beryllium?

A: Oh, yes. Yeah, I probably was, and your company [Brush] used to supply it all the time. I remember throwing away the documents, we used to get so many of them

(Exhibit 6, Chartier Depo., 103.)

B. Raytheon's Requests for Safety Information Regarding Beryllia

29. Raytheon also received warning information in response to Raytheon's specific questions concerning beryllium. (Exhibit 3, Kolanz Decl. ¶ 13-17 and Exhs. 9-16).

30. In 1979, in response to questions by Raytheon regarding the metallizing of beryllium oxide parts, Brush Wellman sent Raytheon literature regarding beryllia that contained a number of warnings, including that "[c]hronic disease may result from varying degrees of exposure to a wide range of concentrations including quite low

concentrations,” and provided information about industrial hygiene measures to reduce exposures, including information about air sampling, ventilation, and respiratory protection. (*Id.* at ¶ 13 and Exh. 9.) Brush Wellman enclosed an article entitled “Beryllium and Its Compounds” from the American Industrial Hygiene Association’s “Hygienic Guide Series,” and a pamphlet entitled “Beryllium Oxide Ceramics and How to Handle Them,” which warned that beryllium oxide may be a “potential health hazard” when processed in a manner that results in “dusts caused by drilling, machining, grinding, filing, [and] crushing.” (*Id.* at 13 and Exhs. 9-12.) Brush Wellman responded to similar Raytheon requests on a number of other occasions. (*Id.* ¶ 14-17 and Exhs. 12-16).

31. The Raytheon employees requesting industrial hygiene information were not only health and safety personnel, but also engineers. (*Id.* at ¶ 18.) This demonstrated that Raytheon was disseminating information to the employees who were actually working with beryllium, and that if Raytheon required additional information about working with beryllium, it would ask for it. (*Id.*; Exhibit 3, Kolan Depo., 317-8.)

C. Brush Wellman’s Safety Presentations to Raytheon Employees

32. Raytheon occasionally invited Brush Wellman to provide training to Raytheon employees. This training involved seminars conducted by Brush Wellman employees (Exhibit 3, Kolan Decl. ¶ 23), presentations by Brush Wellman at Raytheon’s own safety classes (Exhibit 5, McCarthy Depo., 83), and “beryllium oxide-oriented safety training videos” that were incorporated into Raytheon’s safety classes. (*Id.* at 85.) As part of this training, Brush Wellman “conveyed the hazards of beryllium,” and “conveyed the types of operations” that could produce “airborne hazard potential.” (*Id.* at 39, 87.) Brush Wellman made these health and safety presentations to a variety of Raytheon

employees, including union stewards, safety committee representatives, and technical and production personnel. (Exhibit 3, Kolanz Decl., ¶ 23 and Exhs. 19-21.)

33. Following a 1986 presentation, a Brush Wellman employee noted that “Raytheon has a [sic] very, very conservative controls regarding beryllium exposure. They give employees that handle beryllia a semi-annual chest x-ray.” (*Id.* at Exh. 21.) The fact that Brush Wellman was invited to make these safety presentations demonstrated to Brush Wellman that Raytheon was “pass[ing] industrial hygiene information about beryllium or health and safety information about beryllium on to its production workers.” (Exhibit 8, Kolanz Depo., 318; Exhibit 3, Kolanz Decl., ¶ 23.)

D. Warnings to Raytheon About the Hazards Associated with Sandblasting Beryllia

34. Raytheon was specifically warned about sandblasting beryllia. One warning was given by General Ceramics. (Exhibit 9, Gogolen Aff., ¶ 10 and Exhibits A and B; Exhibit 3, Kolanz Decl., Exhs. 7, 14-15, 17.) General Ceramics’ 1986 MSDS stated: “Provide adequate local exhaust ventilation when performing operations such as machining, grinding, laser trimming, sand blasting, chemical etching, etc. where respirable dusts, mists, or fumes are generated.” (Exhibit 9, Gogolen Aff., Exhibit B.) Raytheon was also warned: “[t]he sandblasting of beryllia to clean it for remetalization, can generate airborne beryllium levels above the occupational standard and is not recommended.” (Exhibit 3, Kolanz Decl., Exh. 14). As an alternative to sandblasting, Brush Wellman recommended a method to remove metallization using an acid bath. (*Id.*) Again in August 1986, Raytheon was advised: “the sandblasting of beryllia, to clean it for remetalization, can generate airborne beryllium levels above the occupational standard and is not recommended. High air levels may occur from sandblasting due to inadequate

air flow, hood leakage, beryllium contamination of the blasting medium, or material handling.” (*Id.* at Exh. 15.)

35. Brush Wellman also provided Raytheon with an extensive report entitled “Potential Beryllium Exposure While Processing Beryllia Ceramics for Electronic Applications.” (*Id.* at Exh. 17 at RAY 000908.) The report contained the results of tests that Brush Wellman performed to determine the types of beryllium exposure that would result from twelve different manufacturing processes performed on beryllia ceramics, one of which was sandblasting. (*Id.*) Brush concluded:

The results do, however, indicate that sandblasting fired beryllia ceramic to the point of visible surface erosion does remove beryllia and can cause measurable concentration of airborne beryllium outside of a moderately vented blasting box. . . . Although the concentrations of airborne beryllium found during sandblasting to erode the surface of beryllia were below the recognized safe level, it must be noted that the airborne concentration is a factor of the efficiency of the ventilation system and the amount of beryllia removed.

(*Id.* at RAY000955-RAY000956.)

V. RAYTHEON’S RELIANCE ON A VARIETY OF SOURCES FOR INFORMATION REGARDING BERYLLIUM

36. Raytheon received information about the hazards of beryllium from many sources. (Exhibit 10, Hartford Aff., ¶ 2; Exhibit 5, McCarthy Depo., 431.)

37. Walter Hartford was Raytheon’s Safety Manager for the Microwave and Power Tube Division between 1970 and 1989 and is a Professional Lifetime Member of the American Society of Safety Engineers. (Exhibit 10, Hartford Aff., ¶ 2.) Mr. Hartford “maintained a file of information on beryllium health hazards, which included material from beryllium suppliers, from the government, from [his] own research and from other resources.” (*Id.* at ¶ 10.)

38. Mr. Hartford's file included published articles concerning beryllium, such as a 1959 article on "The Control of Beryllium Machining Operations." (Id. at Exh. B.) The article discussed "the health hazards involved when machining beryllium." (Id. at Exh. B, p. 231.) It further recognized the AEC's exposure limit for beryllium and the need to adopt controls to keep exposures to below that limit: "It was a prime concern naturally to provide a vent system capable of controlling the potential health hazard by maintaining the airborne beryllium dust concentration below the limits recognized by the Atomic Energy Commission." (Id.)

39. Also in Mr. Hartford's file were government documents, such as a 1962 report by the Air Force entitled "Toxicity of Beryllium" and a 1976 report by NIOSH entitled "Beryllium Sampling Methods." (Id. at Exhs. C-D.) The Air Force report was "prepared as a review and a guide for use by individuals who have the responsibility for protecting the health of personnel engaged in operations in which beryllium is used." (Id. at Exh. C at iv.) The report's abstract states: "This report includes specific descriptions of the effects of absorption of beryllium and specific measures designed to prevent illness and maintain health among persons who work with beryllium." (Id.) The report covered the history of beryllium disease, hygienic standards, environmental control procedures, housekeeping, personal hygiene and plant sanitation, and medical surveillance programs. (Id.) The NIOSH report compared different methods for conducting air sampling of beryllium (Id. at Exh. D at 9.) Raytheon's files also included another NIOSH publication, a 1985 "NIOSH Pocket Guide to Chemical Hazards," which included the occupational exposure limits for beryllium. (Exhibit 4, Ubersax Aff., Exh. B.)

40. James McCarthy, the safety engineer and Certified Industrial Hygienist who succeeded Mr. Hartford, testified that Raytheon relied on various standard-setting organizations for information regarding beryllium: “The ones that come to mind offhand are Occupational Safety and Health Administration, American Conference of Governmental Industrial Hygienists Association, National Institute of Occupational Safety and Health. I alluded to the Department of Energy standard earlier in this deposition, and I’m sure the list could go on and on and on.” (Exhibit 5, McCarthy Depo., 430.) Mr. McCarthy further testified that he “read publication such as industrial hygiene journals and [was] receptive to technical information on the best way to configure ventilation systems.” (*Id.* at 431.) He also read “published articles about beryllium exposure,” which in some cases were sent to him, and, in other cases, he “encountered them in the course of normal efforts to stay current in [his] discipline.” (*Id.*)

41. John Chartier, of Raytheon’s purchasing department, testified that he received safety information regarding beryllia from not only Brush, but also from “other suppliers of beryllium.” (Exhibit 6, Chartier Depo., 122.)

VI. RAYTHEON’S KNOWLEDGE AND SOPHISTICATION REGARDING BERYLLIUM

42. Raytheon is a large, sophisticated aerospace company that used beryllium-containing products in the manufacture of electronic equipment for the Department of Defense (Exhibit 5, McCarthy Depo., 29.)

43. Raytheon was aware of the health hazards associated with beryllium long before 1982, when Mrs. Genereux began working at the Waltham Plant.

Q. Certainly, Raytheon has known since the 1960's that exposure to airborne beryllium or beryllium oxide particulate can cause a lung disease?

A. Yes.

Q. And it's adopted policies and procedures to protect its workers against lung disease –

A. Yes.

Q. -- caused by beryllium and beryllium oxide, correct?

A. Yes.

(Id., at 33, 142-143.)

44. Walter Hartford states: "A potential hazard of which I have been aware since at least 1970 for certain operations at the Waltham Facility was lung disease from exposure to airborne particles of 'beryllia' or beryllium oxide (BeO), a ceramic material used in some of the power tubes that Raytheon manufactured." (Exhibit 10, Hartford Aff. ¶ 4.)

A. **Raytheon's Policies Regarding Beryllium**

45. Since the 1960s, Raytheon has had detailed policies to control its employees' exposure to beryllium, including a prohibition on the specific activity plaintiff cites as the cause of her exposure – sandblasting. (Exhibit 4, Ubersax Aff., Exhs. D-F).

46. The policies from the 1960s show that Raytheon was well aware of the pulmonary hazards of beryllium. (Id. at Exh. D, 1-2, Exh. F, 1.) Raytheon's 1961 policy stated: "Not only is beryllium unquestionably a toxic agent, but it is toxic in such small quantities as to be among the most toxic chemically of all elements yet investigated." (Id. at Exh. E.) Raytheon recognized its responsibility to control these hazards. The

stated intent of the 1961 policy was “[t]o provide adequate procedures to cope with the hazards involved in the handling and processing of beryllium and its compounds, and to conform to the provisions of the Walsh-Healy Public Contracts Act and the Codes of the Commonwealth of Massachusetts.” (*Id.* at Exh. E, 1.) The 1961 policy set forth detailed requirements for the handling of beryllium, including procedures for opening packages containing beryllium to ensure that “only qualified people open packages that may contain trace amounts of the toxic dust;” for cleaning beryllium oxide parts received from vendors; for the use of warning tags with the statement “DO NOT SANDBLAST;” for the use of local exhaust ventilation; for air sampling; and for medical monitoring of employees who worked with beryllium. (*Id.* at Exh. E., 2-4.)

47. The 1960s policies further show that Raytheon was specifically cognizant of the hazards of sandblasting, and had put into place procedures to control such sandblasting. (*Id.* at Exh. D, 5-6 and Fig. VII; Exh. E, 3; Exh. F, 13.) For example, Raytheon’s 1967 policy stated: “Beryllium and its compounds, excluding beryllium copper containing not more than four percent, MUST NOT BE SANDBLASTED, GROUND, MACHINED, OR TREATED IN ANY WAY THAT MIGHT CAUSE TOXIC DUST, MIST, OR FUMES.” (*Id.* at Exh. F, 13.)

48. In 1981, Raytheon adopted the policy that was in effect during the time Mrs. Genereux was employed at the Waltham Plant (“1981 Policy”). (Exhibit 10, Hartford Aff. ¶ 5; Exhibit 5, McCarthy Depo., 143-144.) The stated purpose of the 1981 Policy was “[t]o establish the responsibility, procedure, and instruction for the handling of beryllia (beryllium oxide) and parts and assemblies containing beryllia.” (Exhibit 10, Hartford Aff., Exh. A, 1.) The 1981 Policy set forth detailed procedures for the handling

of beryllia at the Waltham Plant. Among other things, the policy required that a “Red Beryllia Tag” accompany beryllia-containing parts throughout the entire production process. This tag stated:

-CONTAINS-
BERYLLIA
Do not Sandblast, Grind, Machine
or Abrade. Dust and Fumes are
Toxic

(Id. at 5.) The policy further asserted: “Grinding and machining of beryllia is not permitted. Sandblasting of beryllia may be performed in an exhausted enclosure that is vented through an absolute filter. The apparatus must be approved by the Safety Department before use.” (Id. at 4.) The policy also contained procedures for the medical surveillance of Raytheon employees who worked with beryllium, including the requirement that those employees have regular chest x-rays and physical examinations. (Id. at 5.)

B. Raytheon’s Beryllium Room

49. At the time Mrs. Genereux worked at the Waltham Plant, Raytheon had dedicated a room at the Waltham Plant to work with beryllia. (Id. at ¶ 6; Exhibit 5, McCarthy Depo., 52, 65.) This room became known as the “Beryllium Room.” (Exhibit 10, Hartford Aff., ¶ 6.) On the door to the room were prominent warnings stating that beryllia were present and dangerous, and that only authorized personnel were permitted to enter. (Id.; Exhibit 5, McCarthy Depo., 65, 67, 167-169; Exhibit 4, Ubersax Aff., Exh. G.) The room contained equipment, specifically a “ventilated closed glove box grit blasting appliance,” that was specially constructed and ventilated to reduce workers’ exposure to beryllia. (Exhibit 5, McCarthy Depo., 52; Exhibit 10, Hartford Aff. ¶ 6.)

50. At the Waltham Plant, the sandblaster in the Beryllium Room “was the only appliance in which people were allowed to grit blast beryllium oxide, and it was arranged specifically for that purpose.” (Exhibit 5, McCarthy Depo., 60, 62.) Employees who grit blasted beryllium parts in the Beryllium Room were required to wear respirators and special clothing. (*Id.* at 278, 445; Exhibit 10, Hartford Aff. ¶ 6.) There is no evidence that Mrs. Genereux ever worked in the Beryllium Room.

C. **Raytheon’s Awareness of its Statutory and Regulatory Obligations and its Efforts to Exceed those Standards**

51. At the time Mrs. Genereux worked at the Waltham Plant, both federal and state law required Raytheon to warn its employees and control airborne exposures. In 1971, OSHA adopted the 2 $\mu\text{g}/\text{m}^3$ limit as the permissible exposure limit for beryllium. *See* 29 C.F.R. § 1910.1000, Table Z-1. Prior to this, federal contractors, such as Raytheon, were required by the Walsh-Healy Public Contracts Act to observe the 2 $\mu\text{g}/\text{m}^3$ limit. *See* 25 Fed. Reg. 13824 (1960). Since 1985, OSHA’s Hazardous Communication regulations have required employers to warn employees who work with hazardous materials, including beryllium. *See* 29 C.F.R. § 1910.1200.

52. Raytheon was “at all times aware of its obligations under the federal Walsh-Healy Act, and later the Occupational Safety and Health Act, to control exposures to airborne beryllium and to inform its employees of the risk of such exposure.” (Exhibit 10, Hartford Aff., ¶ 7.)

53. Raytheon was aware of the 2 $\mu\text{g}/\text{m}^3$ limit: “OSHA required Raytheon to keep levels of airborne beryllium below 2 micrograms per cubic meter as an eight-hour average.” (*Id.*: Exhibit 5, McCarthy Depo., 88.) Raytheon also knew of its obligations

under OSHA's Hazard Communications regulations. (Exhibit 10, Hartford Aff., ¶ 8; Exhibit 5, McCarthy Depo., 317.)

54. Even before OSHA issued the Hazard Communications regulations, Raytheon "provide[d] the supervisors of employees working with BeO information about the risks of airborne Beo, including Chronic Beryllium Disease ("CBD", a lung disease), and about methods of preventing and reducing beryllium exposure." (Exhibit 10, Hartford Aff., ¶ 8.)

55. In addition, Raytheon was cognizant of the need "to conform to the provisions" of the Codes of the Commonwealth of Massachusetts with respect to beryllium exposure. (Exhibit 4, Ubersax Aff., Exh. F at Ray0011426.)

56. Raytheon believed that some workers could contract CBD from exposures even below the 2 µg/m³ limit. As Raytheon's James McCarthy testified:

Q. In fact, you believed that a person could get chronic beryllium disease from exposure below that standard –

MR. HONIK: Object to form.

Q. (BY MR. UBERSAX) – under some circumstances, correct?

A. I believe that there is a fraction of the population who could develop chronic beryllium disease through exposures as low as one might anticipate from natural background of beryllium or beryllium-containing materials in the world that we live in, yes.

Q. (BY MR. UBERSAX) Why do you believe that?

A. Because I'm aware that there are people who have extreme sensitivities to certain specific, or in some cases, very general categories of materials.

(Exhibit 5, McCarthy Depo., 429.)

57. Raytheon's policy was to control airborne beryllium to levels below the 2 $\mu\text{g}/\text{m}^3$ limit. According to Raytheon's Walter Hartford: "Raytheon strove not just to meet that limit but to keep levels even lower." (Exhibit 10, Hartford Aff. ¶ 7.)

58. Mr. McCarthy, in turn, testified that Raytheon aimed to keep airborne beryllium to levels as low as reasonably achievable:

Q. (BY MR. UBERSAX) Mr. McCarthy, do you recall testifying that Brush Wellman's advice to Raytheon was to minimize exposure to beryllium and to certainly keep it below two micrograms per cubic meter?

MR. HONIK: Object to form.

A. Yes.

Q. (BY MR. UBERSAX) Was it Brush Wellman's advice to Raytheon to minimize exposure to beryllium?

A. That's my personal recollection and understanding of the information that was provided by Brush Wellman, yes.

Q. And when you say that, what do you mean by minimize?

A. As low as reasonably achievable.

Q. Is that a term of art in industrial hygiene?

A. It is. It actually comes out of radiological control.

Q. What does that mean, as low as reasonably achievable?

A. It means that one doesn't take an occupational health and safety exposure standard as a bright line between safe and unsafe. It's a guidance value and one seeks to achieve the best control one can in any reasonable way and still be able to do the job and certainly not exceed the guidance values that are available.

Q. In other words, if one can reasonably achieve levels below an OSHA standard, one should do that, correct?

MR. HONIK: Object to the form.

A. Yes.

(Exhibit 5, McCarthy Depo., 424-425).

59. Raytheon would have attempted to control airborne beryllium to levels below the OSHA standard even without being so advised:

Q. Did Raytheon rely on Brush's advice that it should keep exposures as low as reasonably achievable?

MR. HONIK: Object to the form. It's also been asked and answered.

A. I think Raytheon recognized the philosophy that that term implies was consistent with its own practices and with general good practice in the application of occupational safety and health in industry. I don't think that Raytheon relied on Brush Wellman to validate that application of that principle in its occupational safety and health programs.

Q. In other words, Raytheon would have followed the principle of keeping exposure as low as reasonably achievable whether or not Brush Wellman advocated that approach?

MR. HONIK: Object to the form. It's completely leading.

A. Yes.

Q. (BY MR. UBERSAX) And if, for example, engineering controls could reduce exposures in a particular operation below the two microgram standard, Raytheon would use those controls, correct?

MR. JACOBS: Objection.

A. Yes.

Q. (BY MR. UBERSAX) You wouldn't stop at the two microgram standard?

A. No.

Q. And it was Raytheon's practice in the 1980's and since then to engineer its operations to keep exposures to beryllium to the lowest achievable level, correct?

MR. HONIK: Object to the form.

MR. JACOBS: Objection.

A. As low as reasonably achievable.

(Id. at 435-36.)

D. Raytheon's Labeling Policy

60. Raytheon required vendors to place Raytheon-supplied labels on all boxes of beryllium oxide parts sent to Raytheon. (Exhibit 6, Chartier Depo., 25, 84-85, 100-01.) This labeling requirement was part of Raytheon's internal procedures for controlling beryllia. (Id. at 106-107.) On the outside of each box, vendors were required to place a red label that contained the following language:

RAYTHEON
CAUTION
PARTS CONTAIN BEO
DO NOT OPEN PACKAGE
DELIVER TO QC PARTS INSPECTION

(Id. at 109-110, 117-18; Exhibit 10, Hartford Aff., Exh A, 2.) Vendors were required to place a label with the same warning language on the plastic wrapping inside the box. (Exhibit 6, Chartier Depo., 118.) Raytheon insisted that vendors comply with this labeling policy. (Id. at 85-86.)

61. The purpose of Raytheon's labeling policy was to keep unsuspecting employees from being exposed to airborne beryllium:

Q. What was Raytheon's reason for wanting the packages to say do not open the package?

A. We didn't want anybody to open [sic] other than specifically qualified people.

Q. Why was that?

A. It's beryllia.

Q. And therefore --

A. If the product came in dirty, okay, if the product came in dirty, we didn't want somebody opening it up and having the particles floating around and breathing them. I mean, it's --

Q. Is that because it was dangerous?

A. Yes, sir.

Q. What was the danger?

A. I'm not a technical person, but the bottom line, as I understand it, berylliosis.

Q. It's a lung disease?

A. It's a lung disease, yes sir.

Q. And you knew about that lung disease back in the 80's?

A. Did I?

Q. Yes.

A. Everybody in our department and everybody within the plant was made aware of that; yes, sir.

(Id. at 101-102.)

62. Raytheon kept a list of employees at the Waltham Plant who worked with beryllium. (Exhibit 11, Broadbent Depo., 44-45.) The list, known as the "beryllium list," was updated regularly and maintained by Raytheon's safety office. (Id.; Exhibit 5, McCarthy Depo., 244; Exhibit 10, Hartford Aff., ¶ 9.) Employees on the list were included in a medical surveillance program performed by Raytheon's medical department, and were required to have regular physical exams and x-rays. (Exhibit 5, McCarthy Depo., 244-245; Exhibit 11, Broadbent Depo., 45; Exhibit 10, Hartford Aff., ¶ 9.) Raytheon conducted training sessions to warn employees of the hazards of beryllium.

(Exhibit 5, McCarthy Depo., 38, 63, 80-85.) Raytheon also warned employees of the hazards, policies and procedures through parts and assembly instructions. (Id. at 62-63, 150-157.) There were also instruction manuals for the safe handling of beryllium. (Id. at 123, 143-144.)

63. Under Raytheon's labeling procedures, Raytheon's own labels rather than the vendor's labels were to accompany beryllium oxide parts throughout the production process at the Waltham Plant. (Exhibit 10, Hartford Aff., Exh. A, 3.) Raytheon's 1981 Policy stated: "Beryllia parts and assemblies containing beryllia at all stages subsequent to issue from stores must carry with it the Red Beryllia Warning Tag." (Id. at Exh. A at 5.4.1, 5.7; Exhibit 6, Chartier Depo., 105.)

64. Raytheon would throw out the additional warnings supplied by its vendors:

Q: And is it true that the beryllium manufacturers would also provide additional warning information with their product beyond just the Raytheon label?

A. I can't recall that I [sic] seen that with everybody, but I have seen it when I looked at the product in some cases.

Q. Okay.

A. Okay?

Q. And sometimes you had so much information about the beryllium that you'd throw it away because you already knew about the problems, correct?

A. Yes.

(Exhibit 6, Chartier Depo., 140-41.)

65. Raytheon's assembly employees never saw the warning labels or MSDSs from outside vendors of beryllium-containing materials. (Exhibit 1, S. Genereux Depo., 32,48; Exhibit 12, C. Balint Depo., 41-42.)

VII. SUZANNE GENEREUX'S WORK WITH BERYLLIUM

66. Mrs. Genereux worked as a large tube assembler in the Waltham Plant's backward wave oscillator laboratory ("BWO Lab") twice – first from the time that she joined Raytheon in May 1982 to August 1984, and then again between 1985 and 1989. (Exhibit 1, S. Genereux Depo., 20, 51, 79-80.)

67. Mrs. Genereux's job in the BWO Lab was to "assemble subassemblies." (*Id.* at 20-21.) One of Mrs. Genereux's duties in the BWO Lab was to sandblast ceramic parts that were used in the subassemblies. (*Id.* at 55-61, 256-7.) She also welded, filed and brazed beryllium ceramics. (*Id.* at 22, 27, 64.)

68. Mrs. Genereux worked with two subassemblies that she knew contained beryllia: the "ARCO window" and the "tall man." (*Id.* at 23, 53-57.) The ARCO window subassembly contained a beryllia ceramic disc and the tall man contained a rectangular part made of beryllia ceramic. (*Id.* at 23, 57-58.) She knew that these ceramics were beryllia from the blueprints that accompanied the parts. (*Id.* at 25-26.) Hardric did not manufacture these types of parts. (Exhibit 2, Richard Depo., 16, 36 – 38.)

69. The majority of Mrs. Genereux's time as an assembler was spent working with ARCO windows. (Exhibit 1, S. Genereux Depo., 21-22.) Mrs. Genereux estimated that she spent "[a] good 80 percent of my day" working with ARCO windows. (*Id.* at 22.) This was confirmed by her former supervisor, Mr. Al Broadbent, who estimated that Mrs. Genereux spent 90 percent of her time as an assembler working with ARCO

windows. (Exhibit 11, Broadbent Depo., 76.) She could produce approximately twenty ARCO windows in one day, and could sandblast approximately thirty assemblies in a week. (Id. at 76-78.)

70. Mrs. Genereux described the ARCO window assembly in detail. It had eight or nine parts, but only the ceramic disc or “window” was beryllium oxide. The ARCO window was round and approximately three inches in diameter and approximately 3/4 “ thick. (Exhibit 1, S. Genereux Depo., 22-23, 56-58.) It was solid and had no holes in it. (Id. at 104.)

71. Both Mrs. Genereux and Claire Balint, a coworker whom Mrs. Genereux trained to work with beryllia, worked on ARCO window assemblies. (Exhibit 12, C. Balint Depo., 8.) Mrs. Balint and Mrs. Genereux received scores of ARCO windows from Raytheon’s Production Control Department in plastic containers, in lots of up to 20 windows. (Id. at 20-21.) When asked to describe the dimensions of the ARCO window, Mrs. Balint testified that it was probably 2-1/2 to 3 inches around (Id. at 67.) Mrs. Balint confirmed that the ARCO windows were solid discs with no holes in them. (Id. at 81.)

72. Mr. Broadbent likewise described the ARCO window as a solid, three-inch disc that was “about one eighth of an inch thick.” (Exhibit 11, Broadbent Depo., 13-14.) He testified the ARCO window was the only beryllium product with which she worked. (Id. at 13.)

73. Mrs. Genereux also provided a specific description of the tall man: a rectangle about 1 ¼ inch by 2 inches. (Exhibit 1, S. Genereux Depo., 59.) She estimated that she completed only three tall man assemblies per week during her work as an assembler. (Id. at 260.)

74. There were other ceramics on which Mrs. Genereux occasionally performed limited work. “[S]ometimes you would get a variety of little ones that would come through, but we didn’t have – I didn’t actually have to do an assembly. I would just be asked to go sandblast them.” (Id. at 60.) These random ceramic parts were not accompanied by any blueprint to document the chemical composition of the ceramic (Id. at 62.) Because they lacked blueprints, Mrs. Genereux does not know whether these miscellaneous parts contained beryllia or other ceramics, such as aluminum oxide. (Id.) Genereux’s supervisor testified that she did not work with beryllium of any kind. (Exhibit 11, Broadbent Depo., 114.)

75. Mrs. Genereux performed her sandblasting work downstairs in Building 41 at the Waltham Plant (Exhibit 11, Broadbent Depo., 29.) Building 41 was the same facility in which Mrs. Genereux performed her assembly work. (Id.) Mrs. Genereux did not use the sandblaster in Raytheon’s “Beryllium Room,” which was located in Building 1, a different building at the Waltham Plant. (Exhibit 5, McCarthy Depo., 64.) The sandblaster in Building 1 “was the only appliance in which people were allowed to grit blast [i.e. sandblast] beryllium oxide, and it was arranged specifically for that purpose.” (Id. at 60.)

76. Sandblasting of beryllium oxide parts were not permitted in Building 41: “It was against the rules and policies and practices of Raytheon Company to perform grit blasting any place or using any equipment that hadn’t previously been reviewed and approved specifically for that purpose. To my knowledge and recollection, the only place that that was done and allowed was in the first floor of Building 1.” (Id. at 62.) Access to the room in Building 1 was limited to authorized personnel only, unlike the room

where Mrs. Genereux sandblasted. (*Id.* at 65-66.) In contrast, the room in Building 41 was “used by everybody and their brother,” including employees from different departments and assembly areas. (Exhibit 11, Broadbent Depo., 36; Exhibit 12, C. Balint Depo., 33, 34.)

77. Mrs. Genereux asserts that, while sandblasting, she was exposed to visible dust that came out of the sandblasting machine. (Exhibit 1, S. Genereux Depo., 73.) Mrs. Genereux did not wear a respirator while sandblasting, and stated that Raytheon never required her to wear special clothing while working with beryllium. (*Id.* at 26, 47.)

78. Plaintiff’s expert states that such sandblasting “almost always results in breathing zone exposures that are well above the current OSHA limit of 2.0 $\mu\text{g}/\text{m}^3$.” (Exhibit 13, Martyny Aff., ¶ 61(a).) He states that the sandblasting arrangement at Raytheon “assures an exposure well above the current OSHA limit.” (*Id.* at ¶ 61.)

79. Mrs. Genereux testified that, when she worked at Raytheon, she did not know that beryllium could be dangerous and did not receive any training related to beryllium. (Exhibit 1, S. Genereux Depo., 29-32, 38, 264.) Mrs. Genereux never saw any warning labels provided by suppliers of beryllia parts and never heard of the 2 $\mu\text{g}/\text{m}^3$ limit. (*Id.* at 31-32, 48-49.) She did not know that beryllium could cause a lung disease until after she left Raytheon. (*Id.* at 44.)

A. The Suppliers of the ARCO Window and Tall Man

80. Mrs. Genereux has “no idea” where Raytheon purchased the ARCO windows. (*Id.* at 58.) Neither does her supervisor, Mr. Broadbent. (Exhibit 11, Broadbent Depo., 19, 86.) Claire Balint also does not know the name of any manufacturer. (Exhibit 12, C. Balint Depo., 44, 74.)

81. John Chartier, Raytheon's purchasing agent for beryllia during the 1980s, was the one person at the Waltham Plant who was designated as being responsible for the procurement of materials that contained beryllia. (Exhibit 6, Chartier Depo., 16.) Mr. Chartier testified that several manufacturers supplied the Waltham Plant with beryllia ceramics. (Id. at 43 and errata sheet.) Hardric was not among them. (Id.)

82. Mr. Chartier recalled purchasing windows as described by Mrs. Genereux and her coworkers. He testified that a company named Ceradyne, not a party to this suit, supplied the Waltham Plant with those windows:

- Q. Do you recall purchasing any beryllium oxide windows that were round and about three inches in diameter?
- A. Yes, sure.
- Q. And do you recall from whom Raytheon purchased those particular windows.
- A. Some from Ceradyne. I remember getting some big ones from them.
- Q. What was the application for those three-inch windows?
- A. Probably the big BWO's, backward wave oscillators.

(Id. at 50.)

- Q. Do you recall purchasing three-inch diameter beryllium oxide windows from any other vendor?
- A. Yes.
- Q. Which other vendor?
- A. Ceradyne.

(Id. at 76.)

83. Mr. Chartier did not even remember working with Hardric in any capacity.
(Id. at 162, 188-190, 223.)

84. Mr. Chartier testified that he does not recall ever purchasing a beryllia ceramic product matching Mrs. Genereux's description of the tall man:

Q. Do you recall purchasing any windows that were rectangular and approximately one inch by two inch in dimension?

A. No, I don't.

Q. Do you recall any – purchasing any windows that were rectangular?

A. No.

(Id. at 53.)

B. Suzanne Genereux's Allegations of Beryllium-Related Injuries

85. In 1984, Mrs. Genereux saw Dr. J.E. Caruolo, complaining of headaches, nosebleeds and other medical problems. She raised even at that time the question of whether her workplace exposure to beryllium was adversely affecting her health. Dr. Caruolo noted: "[s]he feels the Beryllium [sic] she comes near at work may be 'the answer.'" (Exhibit 14, Caruolo Decl., ¶ 3, Exh. A.) Thus, Mrs. Genereux has long been concerned that her work with beryllium might harm her.

86. By December 15, 2000, Mrs. Genereux contacted U.S. Senator Jack Reed's office for assistance. (Exhibit 1, S. Genereux Depo., 39-40; Exhibit 4, Ubersax Aff. Exh. H, BW-GEN 19215.) Suzanne Genereux first learned of CBD through her contact with Senator Reed's office. (Exhibit 1, S. Genereux Depo., 40, 42.) Mrs. Genereux sent a letter to Senator Reed's office (the "Reed Disability Letter") relating to

her long term disability benefits. (Exhibit 15, B. Genereux Depo., 23; Exhibit 4, Ubersax Aff., Exh. I, BW-GEN 19191-92.) Although the Reed Disability Letter is undated, Mrs. Genereux wrote the letter on or before January 22, 2001. It is referenced in two separate pieces of correspondence from Senator Reed dated January 22, 2001. (*Id.* at Exh. BW-GEN 19190, Exhibit J, BW-GEN 19213.) The Reed Disability Letter was addressed to a congressional staff member in Senator Jack Reed's office. (*Id.* at Exh. I, BW-GEN 19191-92.) In the letter, Mrs. Genereux complained that MetLife and Raytheon had permanently terminated her long term disability benefits in April 1995 when she was still permanently disabled from Parkinson's Disease. (*Id.*)

87. The Reed Disability Letter complained of financial difficulties and indicated that Mrs. Genereux should be entitled to long-term disability benefits "til I am 65 as Vascular Parkinson's Disease will not go away." (*Id.* at BW-GEN 19192.) The letter considered the cause of her physical ailments:

I am told that the causes of Parkinson's Disease are still being researched. I am told that the environment may be a cause, but it may not be found out in my lifetime. While working for Raytheon, I worked in rooms with asbestos ceilings (which left dust on the benches and other items) (Asbestos removal in Waltham was in late 1990 and 1991.) I was forced to sandblast beryllium ceramics with no masks, open sandblasting units, no protective clothing. I also used a lot of acetone and other degreasing agents and worked in a small room off of a large plating room.

(*Id.*, emphasis added.)

88. Senator Reed's office included the Reed Disability Letter in correspondence that they sent to the Department of Labor on Mrs. Genereux's behalf on January 22, 2001. (*Id.* at Exh. I, BW-GEN 19190.) On January 22, 2001, Senator Reed's office also sent a letter to Mrs. Genereux indicating that they had contacted the Department of Labor on her behalf. (*Id.* at Exh. J, BW-GEN 19213.) This letter stated,

“pursuant to your request for information concerning Beryllium [sic] exposure, you should contact 1-877-447-9756 and leave your name and address for further information.” (Id.)

89. The Department of Labor then put Mrs. Genereux into contact with National Jewish Medical and Research Center, a Colorado facility that has experience with chronic beryllium disease. (Exhibit 1, S. Genereux Depo., 214.) National Jewish Medical and Research Center sent Mrs. Genereux information relating to CBD and a beryllium lymphocyte proliferation test (“BeLPT”) kit for her to give to her general practitioner, Dr. David Ashley. (Id. at 44, 46, 108; Exhibit 16, Ashley Depo., 41.) The BeLPT is a blood test used to diagnose beryllium sensitization and CBD. (Exhibit 16, Ashley Depo., 41.)

90. On June 8, 2001, Suzanne Genereux visited her general practitioner, Dr. David Ashley, and discussed her beryllium exposure. (Id. at 35-36, Exh. 3.) In contemporaneous office notes from the June 8, 2001 visit, Dr. Ashley wrote, “potential exposure – acetone, beryllium, asbestos. Brings in reading for.” (Id. at Exh. 3, emphasis added.) The “reading” material that Mrs. Genereux brought for Dr. Ashley was a publication issued by National Jewish Medical and Research Center entitled, “Facts about Beryllium Disease.” (Id. at 37, Exh. 4.) In a section entitled, “How Do I Find Out if I Have Beryllium Disease?” the brochure indicates that screen begins with a chest x-ray and a BeLPT test. (Id. at Exh. 4.) In relevant part it states:

How do I Find Out if I have Beryllium Disease?

Screening for beryllium disease usually begins with:

A chest x-ray

A blood test for beryllium sensitization (BeLPT)

The blood test detects abnormalities earlier than breathing test or chest x-rays. It is available at National Jewish Medical and Research Center. This test is not routinely done in other medical laboratories; it is done only in a few centers that study and treat patients with beryllium disease. Doctors and patients may order the test from any place where overnight courier service to Denver, Colorado is available.

(Id., emphasis in original.)

91. Mrs. Genereux reporting experiencing shortness of breath and occasional wheezing when she visited Dr. Ashley on June 8, 2001. (Id. at 71.) During the June 8, 2001 visit, Mrs. Genereux told Dr. Ashley that she suspected that beryllium was causing her breathing problems. Mrs. Genereux asked Dr. Ashley for a blood test to determine whether her breathing problems were caused by beryllium:

Q. And did she suggest that there was some kind of problems that she was encountering that she thought was related to potential Beryllium exposure?

A. Her breathing problems. I mean, she had childhood asthma that basically reoccurred as an adult, and she was labeled as an asthmatic, and she was wondering whether this, you know could be something other than asthma, so...

Q. So that was basically what she was presenting to you when she came in with the materials that were relating to Beryllium disease, back in early June of 2001; Is that correct?

A. Yes.

(Id. at 64.)

Q. Dr. Ashley, before Mrs. Genereux visited you on June 8, 2001, she had from time to time experienced symptoms of lung disease, correct?

A. Correct.

Q. What were those symptoms?

- A. Shortness of breath, wheezing occasionally, not responding to typical medication that you treat asthma with.
- Q. Is it true those symptoms had previously been attributed to asthma.
- A. Yes.
- Q. And when she came to see you on June 8, 2001, did she raise the question whether those symptoms might really be caused by Beryllium exposure, or some other chemical exposure?
- A. Yes.
- Q. Was that the reason why she wanted the blood tests to be one at National Jewish?
- A. My understanding was that's probably one of the places that does that blood test, but yes, that's.
- Q. Well, she wanted the blood test to be done in order to determine whether –
- A. Yes.
- Q. her lung problems were caused by Beryllium?
- A. Correct.

(Id. at 71-72.)

92. Before this June 8, 2001 office visit, Dr. Ashley knew little about beryllium and nothing about beryllium disease. (Id. at 39-40.) Mrs. Genereux knew more about the BeLPT blood test than did Dr. Ashley. (Id. at 41.) By the time of the June 8, 2001 appointment with Dr. Ashley, Mrs. Genereux already had begun her own investigation into whether she had CBD:

- Q. So she was making inquiry and pursuing, through at least one channel, to determine whether or not she was suffering from a disease that was related to Beryllium exposure; is that correct?
- A. Correct.

Q. And that was at least as early as June 8, 2001?

A. Yes.

(Id. at 66.)

93. On June 19, 2001, Suzanne Genereux again saw Dr. Ashley. During this visit, Mrs. Genereux specifically asked to have a BeLPT performed. (Id. at 42.) Dr. Ashley's notes from his June 19, 2001 examination of Mrs. Genereux indicate: "Beryllium Exposure – in past while employed by Raytheon. Will send special req'd [required or requested] test." (Id. at 42, Exh. 5.) Dr. Ashley did send that test as Mrs. Genereux requested:

If I recall, this was one of these complicated things where the patient probably had the vials and the requirements on how the blood had to be drawn with her, and the lab was in the office would do that for her, and then we mailed it from here, so she had everything necessary to package the test and then to send it to wherever it had to do – got interpreted, developed.

(Id. at 43.)

94. On June 20, 2001, Mrs. Genereux had blood drawn at Rhode Island Hospital for the beryllium test. (Id. at 48, Exh. 6.)

95. Plaintiffs filed their original complaint on June 22, 2004. (Compl. at ¶ 1.)